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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,362	12/08/2003	Alex Popenov	Serie 6290	2825

7590

03/14/2005

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EXAMINER

HOANG, TU BA

ART UNIT PAPER NUMBER

3742

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/730,362

Applicant(s)

POPENOV ET AL.

Examiner

Tu Ba Hoang

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 14-44 and 46-50 is/are rejected.
- 7) ☒ Claim(s) 9-13 and 45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 06/07/04 & 06/08/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 50 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 50 is incomplete for omitting essential steps or essential structural cooperative relationships between "energy" recited in the preceding claim 47 and "chemical energy" now recited at lines 2-3 in order for "increasing spatial coverage of "chemical energy", such omission amounting to a gap between "energy" and "chemical energy". See MPEP § 2172.01. It is suggested that the phrase "said method ....coverage of" recited at lines 1-2 to be replaced by "said energy including chemical energy" for better clarification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 25, and 47-50 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Flichy et al (US 6,229,838) cited by the Applicants. See figures 1 and 7.

Claims 1-8, 14-24, and 47-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Nabors, Jr. et al (US 5,554,022 cited by the Applicants. Nabors, Jr. et al shows an apparatus 4 comprising a panel 7 (Figure 1) positioned at least partially into a side wall of a combustion furnace (such as arc furnace, i.e., electric ignition system as set forth at column 3, lines 19-24), wherein the panel comprises a plurality of openings (13,14,15,16,17,18,19,20) for injecting a material such as combustion fuels, hydrocarbon fuels, solid, liquid or gaseous fuels (column 1, lines 18-22, i.e., chemical energy) through each of the openings at least partially during the same time period, the panel 7 further comprises a front portion 22, a first side portion 28, a second side portion 26, an upper portion 25, and a lower portion 27 with each said portions includes at least one of said openings (13-20), at least one of the first and second side portions 28,26 are positioned at a degree that is in a range of about 0 degree to about 45 degrees relative to the front portion 22 (as shown in Figures 1 and 4), the panel 7 comprises at least central opening (12, 13,14, 15, or 16), a second side opening 18, and a lower opening 19 with the central opening 12 in the form of a cylindrical area (1 or 13 or 15) for stabilizing a flame is positioned upon the front portion 22 (shown in Figures 2 and 3) and can also be positioned at an angle relative to a horizontal reference (as shown in Figures 3 and 4) so that lancing of the material (i.e., combustion oxygen) is performed at an angle relative to the horizontal reference, each of the openings can be positioned upon the respective portion of the panel to provide secondary combustion oxygen or other combustion fuel materials or particulate injections with at least the lower

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opening 19 is also positioned at an angle relative to the horizontal reference and also at least a stream of material injected through the first and second side openings 18,20 is injected at an angle in the range of about 0 degree to about 90 degrees (as shown in Figures 3 and 4).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art Figures 1-3 in view of Nabors, Jr. et al. The prior art Figures 1-3 discloses substantially all features of the claimed invention including an electric arc furnace 100 comprising a roof 110, a lower shell 130, an upper shell 120 comprising a furnace portion enclosed by a side wall 220, and a panel 310 positioned at least partially into the sidewall of the furnace portion. The admitted prior art Figures 1-3 fail to show the panel comprising a plurality openings for injecting combustion materials including secondary oxygen fuels and others through each of the openings at least partially during the same time period, the panel having a plurality of portions with openings positioned in different relative angles and configurations in the manner recited in claims 26-44 and 46. Nabors, Jr. et al discloses the use of a panel comprising a plurality openings for injecting combustion materials through each of the openings, the panel having a plurality of portions with openings positioned in different relative angles and configurations in the manner as recited in the claim as set forth in the previous section above. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in the admitted prior art Figures 1-3, in light of the panel 310, the panel 7 taught by Nabors, Jr. et al in order to inject combustion materials such as secondary oxygen fuels and others through each of the openings at least partially during the same time period as well as to have the fuels to be injected at different angles or rates if so desired.

Claims 9-13 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

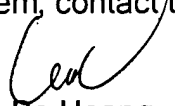
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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Shver (US 6,289,035) and Strelbisky (US 2004/0213318 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu Ba Hoang  
Primary Examiner  
Art Unit 3742

March 07, 2005